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ABSTRACT

Developing a youth apprenticeship in the United States would boost productivity, improve the preparation of youths for the skill demands of a global economy, and simultaneously offer minority youth an avenue into the economic mainstream. Germany's "dual system" of youth apprenticeship could be adopted to form a national skill-building partnership between public schools and businesses in the United States that would expand the supply of skilled workers, narrow the earnings gap between college and noncollege youth, create new incentives for youths to stay in school, and offer disadvantaged youths a realistic alternative to early parenthood and crime. One vision of a youth apprenticeship system in the United States includes five steps: (1) changing school curricula to expose students in grades 8-10 to information about various occupations; (2) offering 10th graders a choice between pursuing an apprenticeship or remaining in a purely academic track; (3) creating a 3-year apprenticeship starting in grade 11; (4) giving apprentices a comprehensive test at the end of grade 12 to ensure both job and educational proficiency; and (5) spending at least 75 percent of the third year of apprenticeship on the job while spending the remainder in either a high school or a community college. (Contains 17 references.) (MN)

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WHY AMERICA SHOULD DEVELOP A YOUTH APPRENTICESHIP SYSTEM

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--John Stuart Mill

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EXECUTIVE SUMMARY

America faces a fundamental domestic challenge in the 1990s: reversing the stark and growing disparity between the fates of college-bound and non-college youths in our society.

In recent years, the latter have suffered a dramatic decline in real wages and income. Further limiting their economic prospects are the disappearance of high-skill jobs in traditional industries, and the failure of our nation's education system to impart even basic skills and competencies to many. If we permit these trends to continue, the promise of upward mobility will ring hollow for the "forgotten half" of young Americans who do not finish or go beyond high school.

The United States needs to give urgent priority to expanding the career options of non-college youth. Already, the country is losing a tragically large number of young black men to crime and drugs. The drop in real wages of young high school graduates of all races is weakening the commitment of young men to the economic mainstream and to family life. And the lack of job-ready skills, together with the declining number of young workers, is limiting the nation's productivity growth and thus its ability to raise living standards.

The root of the problem is that the capabilities of the work force, especially non-college workers, are not keeping up with the rising demand for skilled labor. As a result, U.S. productivity and wage growth remain low, while the gap widens between the earnings of college and non-college workers.

Between 1973 and 1987, the ratio of wages for college graduates to wages for high school graduates rose from 1.49 to 1.81, for young men with 5-9 years of work experience. In fact, in terms of purchasing power, the earnings of high school graduates actually declined over the last 15 years.

Defining the problem in this way inevitably calls attention to the American school system and its poorly designed system for integrating non-college youth into meaningful careers. Typically, high schools have close connections with colleges but weak links with employers. After leaving high school, non-college workers usually rely on informal contacts to obtain a full-time position. Many test the labor market by moving from one employer to another before settling into a long-term job.

High school students who are not going to college see little if any relationship between what they learn in school and their future careers. Nearly 60 percent of vocational students end up in jobs that have nothing to do with the training they receive in high schools. For America's non-college youth, a large

and widening gulf separates the world of school and learning from the world of skilled and rewarding work.

This reality poses particularly serious problems for disadvantaged youth. While most non-college youth see little gain from performing well in high school, they tend to stay in school anyway, if only because of social and family constraints. Disadvantaged youth, however, are more likely to fall prey to pressures from the street, including peers encouraging them to leave school altogether. And the absence of formal connections between employer and schools imposes special hardships on inner-city black youth, because they have few informal links to jobs.

In many ways, public policies have reinforced the growing tendency for academic skills to determine career success. Governments spend enormous amounts on grants and loans for low-income students to attend college. These help the most academically capable, but do nothing for the vast majority of low-income youth. Far less is spent on vocational education, which, in any event, is often divorced from labor market realities.

The natural impulse of policy makers is to develop highly targeted programs for the poor and for minority youth. Yet such a strategy can easily backfire. When programs deal only with the most disadvantaged and least educated, the participants easily become stigmatized. Many employers are unwilling to take a chance on the graduates and the youth themselves see such training programs as a weak substitute for existing jobs in the regular or underground economy. Funding is often unstable and difficult to sustain; at best, the programs provide only a marginal addition to the existing systems of education, training and career placement.

This paper makes the case for an alternative strategy -- a job apprenticeship system for non-college youth beginning in the late high school years. Such a system would embed the job market difficulties of minority youth within the broader problems faced by non-college youth.

The apprenticeship system is elaborate and widely used throughout Germany, Switzerland, and Austria. But U.S. policy makers are only now beginning to take a serious interest in this method of integrating young people into jobs and careers. Our proposal would adapt the German model to American conditions, making due allowance for differences in culture and in the kinds of social problems our society faces.

We call for a national skill-building partnership between public schools and business. It would focus on four primary goals:

- *Expanding the nation's supply of skilled workers;*
- *Narrowing the earnings gap between college and non-college youth;*
- *Creating a powerful new incentive for youths to do well and stay in high school; and,*
- *Offering disadvantaged youths a realistic alternative to early parenthood, crime and drugs.*

How would a U.S. youth apprenticeship system work? Our approach envisions a five-step process:

1) change school curricula to expose students in the 8th through 10th grades to information about various occupations, including visits to businesses.

2) offer 10th grade students a choice between pursuing a job apprenticeship or remaining on a purely academic track. Those choosing the former option would sign formal contracts with specific employers.

3) create a three-year apprenticeship, starting in the 11th grade, during which

students could earn skill certifications as they combine on the job training with school courses.

4) give apprentices a comprehensive test at the end of the 12th grade to ensure both job and educational proficiency.

5) spend at least 75 percent of the third year of apprenticeship on the job, and the remainder either in high school or community college to supplement technical training.

We propose a national Youth Apprenticeship Institute through which representatives of schools, businesses, governments and labor organizations can work together to specify the necessary skills required to enter and succeed in an occupation, to develop a system for certifying trainers as well as apprentices, and to monitor the quality of work site training. Washington's role is chiefly to act as a catalyst for efforts by local school systems and business to harmonize their curricula, job training and hiring practices. We further recommend $500 million in federal matching grants to fund apprenticeship demonstration projects in 10 cities.

Ultimately, the purpose of these efforts is to gain national credibility for apprentices as highly trained workers whose skills are occupationally specific, portable enough to be valuable for a variety of employers, and critical for taking effective advantage of additional training. It is also possible that apprenticeship will inspire youths who otherwise might not have finished high school to go on to college, in order to enlarge their prospects.

Youth apprenticeship is a progressive strategy for stimulating growth with equity -- for boosting our nation's productivity while equalizing opportunities for young Americans. It can radically improve the preparation of youths for the skill demands of a global economy. At the same time, it offers minority youth an avenue into the economic mainstream. Youth apprenticeship answers the need for broad-based programs that reach the disadvantaged but avoid the stigma associated with welfare-type programs.

* * *

America's Skills Gap

There is nearly unanimous agreement that America's high schools are doing a poor job of preparing many young people for work. There is less agreement over solutions. To some, better schools mean parental choice; to others, it may be merit pay for teachers, school-based management, more effective racial integration, or simply large increases in the budget to raise teacher salaries, reduce class size, and improve facilities. While these and other school-based reforms have merit, they overlook the central resource in the school system: student time.

The time and intensity of effort put in by students has an enormous impact on their performance. Unfortunately, today's students spend far too little time on school work. Only about half the time at school is devoted to active involvement in a learning activity. High school students in 1980 spent an average of 3.5 hours per week on homework, far less than the 10 hours per work devoted to a part-time job and the 25 hours per week watching television.

Low motivation is most acute among non-college students, who see little immediate gain from working hard in high school. They realize that earning a high school degree will affect their access to jobs, but they see little connection between their specific performance at school and their chances for good jobs or careers. High schools typically do not have elaborate job placement services; employers rarely rely on the recommendations of high school teachers; and those hiring new students generally do not request academic transcripts.

The connection between high school achievement and subsequent success is much closer in other countries, including Germany and Japan. Companies in these countries base their hiring and acceptance of apprentices on grades and other indicators of school performance. Firms recognize that their substantial investments in training will only pay off if employees have the ability to learn. Conversely, the ability of firms to screen effectively for capable workers gives them the confidence they need to spend significant sums on training.

American managers increasingly recognize the importance of improving incentives for young students to learn while in high school. Employers have become so concerned about screening unqualified high school graduates that the American Business Conference and the National Alliance of Business recently decided to develop a standardized skills test for high school graduates. Roger Johnson, chief executive of Western Digital Corporation, sees the test as *"...a great opportunity to make a direct impact and to signal to young people that there are benefits to doing well and penalties for not doing well in school."*

While desirable, a national test may not be enough to motivate students and assure that they learn enough to become effective, productive workers. Many high school students are school-weary by the time they reach 11th or 12th grade. Over 70 percent of today's dropouts leave high school because they do not like, or feel they do poorly with, an academic approach to learning.

Another barrier to good school performance is peer pressure against academic achievement. The problem is especially severe in many inner-city black communities. A study conducted in Washington, D.C. found that students who work hard and get good grades are often derided by peers for "acting white." The pressure to conform forces good students to disguise their efforts to achieve academic success. Even in high schools outside minority inner-city areas, the limited rewards for academic performance (especially for non-college youth) are rarely enough for many students to withstand mocking by their peers.

Student alienation from academic modes of learning is another barrier that

limits educational achievement. Lauren Resnick, a past President of the American Educational Research Association, has observed that schools use learning methods that differ enormously from the way people learn at work and in other life contexts. For example, schools stress individual rather than team approaches; schools manipulate symbols and abstract thoughts while outside of school people use tools and deal with specific situations. Not surprisingly, many students do better when learning in a contextual environment.

The experience of the armed forces offers solid evidence that some students, particularly recruits with limited abilities, succeed better in courses taught under the "functional context" approach than through standard methods. For example, many students learn electronics most effectively in the context of how equipment functions and how it is maintained.

Differences in learning styles lead many students to choose vocational programs over academic ones. This option prevents some students from dropping out of high school. Moreover, non-college students can improve their academic skills by taking vocational education courses that stress learning through applications.

Unfortunately, however, the current vocational education system in U.S. high schools has some serious weaknesses. The most important is the mismatch between the students' course of study and their subsequent jobs. Less than three of 10 vocational education students work on jobs using the skills from their school programs.

The postsecondary vocational education system is also beset with problems. Although many of these vocational schools train students effectively and place them with employers, the training is largely school-based and often responds more to the number of school slots than to the number of jobs. This leads to frequent mismatches between the training and the jobs in which students are placed.

The postsecondary vocational system has also been marred by widespread abuses. Some for-profit "proprietary" vocational schools aggressively seek low-income students who qualify for federal student loans. A recent Congressional hearing focused on the case of a Florida correspondence school that employed nearly three times as many loan processors as instructors. Not surprisingly, the value of the training such schools provide is frequently dubious. Often, students default on the loans they were encouraged to take out -- in 1986, the default rate for these loans was 40 percent.

The basic flaw in the existing vocational education system is its tenuous connection to the labor market. The people who operate vocational schools have few incentives to ensure that their training is relevant to specific employers' needs. While a reputation for high quality can obviously be valuable, potential customers often lack accurate information about the school's record. The situation is far different when employers spend their own money on workers who they expect to remain with the firm for many years. For them, the incentive to perform well is directly related to the employer's long-term success.

The German Model

Germany's "dual system" of youth apprenticeship is built upon formal and intimate ties between schools and businesses. German employers believe their training system provides a major competitive advantage over firms in other countries. An employer who sponsors youth apprentices has a chance to observe potential workers during try-out periods, and sees a return on his training investment in terms of the worker's long-term productivity.

The investments and expected returns vary, especially with firm size and industry. Large employers, especially in the manufacturing fields, spend more on training than most small firms, but expect a high return because 80-90 percent

of apprentices remain with the firm and often stay for many years. Small firms generally invest less and expect lower returns since they employ only about half of the apprentices and retain them for fewer years.

German students learn in detail about occupations from seventh through ninth grade. School tracking begins around the seventh grade, with students going into a university-bound, an academic-technical, or a vocational program aimed at semi-skilled occupations. By ages 16-18, over half sign contracts with employers that specify the details of the training and compensation. Students receive on-the-job training and stipends from employers but must attend school part-time. Apprentices must take interim and final examinations to demonstrate their competencies. Boards of examiners made up of employer and worker organizations hold the examinations. After receiving their certification, over half of apprentices remain with the firm that provided the training and a large share of the others stay in the same occupation.

Overseeing the system is the Federal Institute for Vocational Training (*Budesinstitut fur Berufsbildung*), which is not a government agency, but rather an entity governed by a board drawn from employers, unions, and the government. Through the Institute, competency standards are developed for nearly 400 occupational areas, a process that often takes years of research and negotiation among the parties. The standards specify the minimum competencies for an occupation as well as a training plan that guides the timing, sequencing, and organization of the training. Regional chambers, made up of business and union representatives, govern the program at the local level. They check the suitability of firm training, organize exams, deal with complaints, provide technical assistance, and help match trainees with training firms.

Decisions by individual companies determine the supply of apprenticeship positions, without any national or regional plan. This insures a responsiveness to the needs of employers. In practice, the system has also proved capable of dealing with large increases in students wanting positions. Between the mid-1970s and early 1980s, the demand for apprenticeships jumped by 50 percent, largely because of a demographic bulge of youth. German employers were able to meet most of this unusually large increase in demand. New apprenticeship contracts rose by over 50 percent at a time when total employment fell by 6 percent.

A Competitive Edge

The German experience offers the most striking demonstration of the success of the apprenticeship model. In Germany's modern, dynamic and high-growth economy, about 70 percent of young people enter the job market through the apprenticeship system. Only six months after passing the German apprenticeship examination, the majority (over 68 percent) of graduates were working in occupations for which they were trained. German executives attribute much of their business success to their sophisticated work force, trained largely under the apprenticeship program.

Studies confirm their convictions. French sociologists compared the performance of selected French and German firms in the same industries with similar physical plants and equipment. They found that higher productivity in the German firms stems largely from the German system of training and certifying workers. German factory workers not only attained higher skills, but also developed closer working relationships with other workers, including supervisors. Many managers and supervisors were formerly apprentices and thus know from experience what takes place in entry and middle level jobs.

A productivity advantage for German firms also shows up clearly in comparisons with similar British firms. The primary reason is the higher vocational qualifications of the German work force. In five major skill occupations, including electrician, construction and office workers, Germany trained about four times as

many workers as Britain and without any sacrifice in quality. Overall, about 60 percent of the German work force obtains an intermediate level skill, or twice the rate in Britain. The high skill levels improve production and quality in many ways, including the implementation of new technology and the ability of employees to organize production and undertake complex and varied tasks.

Workers in the lower half of the distribution of academic abilities gain most from the German approach to education and skill acquisition. Only 10 percent of German students leave school without a certificate of competency in a variety of basic subjects. One reason for this success in the educational realm is that students are aware of the large array of occupational outlets available to them through the apprenticeship system.

In *"Schoolworks,"* a study of European education and job training programs issued by the German Marshall Fund, author William E. Nothdurft notes:

"...the formalized credential-building that lies at the core of the dual system is the sources of Germany's low youth unemployment levels and stands in stark contrast to America's 'Forgotten Half' problem -- the low incomes and limited economic prospects of those who do not attend college.

"Today, persuading American employers to hire disadvantaged individuals who have completed any of the hundreds of training courses in the haphazard system of government-assisted job training currently in place is an uphill battle. Not surprisingly, they avoid what they perceive to be 'damaged goods' and seek known commodities.

"As a consequence, college degrees have become requirements for thousands of jobs that, in fact, require far less formal education. A universally recognized, non-college credential-building system would provide the kind of assurance employers seek and customers demand."

Linking School to Work

How can an American youth apprenticeship system overcome problems that limit the productive capabilities of today's youth? To work effectively, the system must offer opportunities for rewarding careers. The initial training, say in a service station, bank, or factory, must be serious and yield certifiable skills; the apprentice must realize that the program's training can ultimately help him or her reach such high level occupations as mechanical specialist, service station owner, financial service representative, or bank manager.

Once operational, the new system would give non-college bound students greater incentive to perform well in high school. Those with solid achievement by their sophomore year would have the widest pick of apprenticeship opportunities. Proper guidance or even street knowledge about placements would alert students by the seventh or eighth grade about the potential rewards from learning key academic skills.

After learning about occupations, students would enter apprenticeships in the 11th grade. For example, bank trainees would learn the significance of responsibility; of mathematics in the calculation of interest rates and financial returns; of reading comprehension in understanding contracts; and of laws that banks must follow. Landscape apprentices would have to become competent in tasks as varied as the basis of fertilizers, how to budget, and how to present proposals. In these and other cases, apprentices will quickly recognize the relevance of their school work to the successful completion of their apprenticeship and securing a good job and career.

For students, the incentives to do well are the potential gains from entry into a successful career and the potential costs from spending three years with an employer without learning the competencies required in the occupation. Poor performance in the apprenticeship would mean

forfeiting time and energy, giving up a potentially rewarding career, and having to start their job search all over again.

The effects of apprenticeships on peer relationships could prove as important as the direct rewards from an attractive career. By drawing juniors and seniors into an adult work environment, apprenticeships would expose participants to a new peer group and to expert workers who could serve as mentors. While most students already work part-time, their jobs are usually in low skill positions, often at fast food restaurants or retail stores, that have little to do with long-term career success and provide minimal skills training. In fact, the spending money earned often reinforces a youth culture in which education is a low priority.

There is growing recognition of the need for adult mentors, especially for the large number of adolescents who lack ties with their fathers and other adults in mainstream occupations. Some managers and professionals volunteer to help adolescents finish school, identify career goals, and avoid trouble with crime, drugs, or unwanted parenting. Although these mentoring programs can be constructive, the links they create are somewhat artificial, developed chiefly out of concern for the failure of the young person.

In contrast, the mentoring that accompanies apprenticeships would be routinely available through a school-employer system. Moreover, it would reflect the mutual interest of the trainer and the student in teaching and learning concrete tasks. After all, the apprentice aspires to enter the same occupation (and often the same company) as the trainers and other workers.

Another advantage of youth apprenticeship is that its teaching methods are more effective for many young people than are traditional school-based methods. When training takes place at work, the learning occurs in a functional context, the theoretical material has immediate practical application, and students can generally use all available tools to achieve the relevant tasks. Completing the tasks successfully requires more emphasis on cooperation among workers than takes place among students in school settings.

Youth apprenticeship programs have surface similarities to existing vocational education programs, but the differences are so significant that the two approaches can yield widely divergent outcomes. Vocational education takes place within schools, with little or no specialization, and without a serious certification procedure developed with and agreed to by employers and worker representatives. Another major difference is the way that training options arise under the two systems. The quality and quantity of vocational school courses are driven mostly by school budgets and by the interests of teachers, not primarily by the needs of employers.

In practice, this approach has left nearly 60 percent of vocational education students receiving training in fields unrelated to their future careers. In contrast, the apprenticeship system relies on the availability of specific jobs. Few employers will sponsor apprenticeships if they do not expect any long-term need for the workers in fields for which training is provided.

The U.S. Experience

Although the overall impact of vocational education in the United States is limited, some students who do find jobs in fields related to their studies achieve significant gains, through reduced unemployment as well as increases in hourly wages.

Increases are particularly large for black youth. In fact, black workers earn as much as whites, when studies control for vocational concentration, the training-related nature of the jobs, and personal characteristics.

Vocational education courses have also helped non-college students learn basic skills, such as math. Some high schools are developing programs of applied learning, which integrate academic with vocational subjects and thus assist students to learn in context and through hands-on techniques.

Formal apprenticeship programs within the U.S. have operated for many years but have trained only a small share of the labor force. The typical U.S. program differs substantially from the youth apprenticeship approach we propose. Under existing programs, unions restrict the number of apprenticeships and limit the available positions to experienced workers in their mid- to late-20s.

Economists have criticized union rules on grounds that they lower the number of future skilled workers. Critics also say that such restrictions have been used to benefit relatives and friends, and exclude others, including minorities.

Nonetheless, existing apprenticeship programs have demonstrated their effectiveness in training productive workers. A study of the construction industry (where current apprenticeship programs are especially widespread) found that union firms had higher productivity than non-union firms, partly because of the higher quality training delivered through union apprenticeship programs.

The U.S. experience with apprenticeship programs in the high school years, such as those operating in Austria, Germany, and Switzerland, is extremely limited. A demonstration project sponsored by the U.S. Labor Department in the late 1970s encouraged local school districts, state education agencies, community colleges and nonprofit corporations to operate in school apprenticeship projects at eight sites. In general, the projects were highly successful. The sites trained over 3,000 youth and nearly all (95 percent) expressed satisfaction with the project. Although the working collaborations between schools, apprenticeship agencies and employers took a few years to develop, most employers approved of the program and 63 percent had already recommended that other employers join. The added government costs were extremely low, averaging only $1,384 per apprentice.

An American Youth Apprenticeship System

Can it work outside Europe? Can the U.S. build a comprehensive and successful apprenticeship system without a long historical and cultural tradition linking the state, education and work, such as exists in Austria, Switzerland, and Germany? Will U.S. firms participate in their own interest? Can employer associations, together with schools and other state agencies, achieve adequate cooperation and staying power to develop a major youth apprenticeship system?

Considering the alternative, which is to permit the less educated half of our youth population to fall farther behind, in effect dividing our society into two educational classes, the answer to these questions must be "yes."

Of course, a comprehensive system will require sustained, long-term effort. Employers must treat apprenticeship as a critical element of their business and competitive strategy, not merely as an altruistic gesture. Judging by the German experience, U.S. firms will come to understand that they benefit from assuring quality preparation for their workers and a system of try-out employment. The investment patterns may vary, with large firms investing and recouping more value from the training and small firms drawing more from the work effort of trainees. But, it will be employers themselves that finance the stipends and training.

Establishing an effective program in the U.S. will mean major changes in the school system as well as the job market. Schools need to include vocational preparation in their curriculum, create com-

plementary education programs for apprentices, and help in job placement.

Students would encounter the new vocational education track in the following sequence:

7th-9th Grade: Learning about various occupations through course modules, site visits, job sampling, and visits by employers to schools;

10th Grade: Application and interviews for apprenticeships; choices include a wide variety of occupations or staying in a purely academic tract; apprentices would sign agreements with employers at the end of the academic year;

11th and 12th Grade: Apprentices mix training at work sites with courses at high schools; the time spent at work sites will typically increase from 30 percent to 75 percent depending on the occupation; late in 12th Grade, apprentices take interim examination. High schools continue to design their general courses.

Post High School: Students spend 75-80 percent of their time at work sites but draw on community colleges for some supplementary theory and skills courses. Many students in technical fields take enough courses to obtain an associate degree.

Link to College Education: Some students, especially in technical fields, choose to go beyond apprenticeship education and attend college.

Perhaps the most difficult and extensive preparatory work will be to define the occupational areas and to specify the skill competencies and training standards. Employers, employer associations, and labor representatives will have to work with government education and labor agencies to achieve solid programs in each career field. Employers should provide the trainers, who themselves would have to undergo training and demonstrate their capacities. It will take time, perhaps two to three years, to build each occupational program. Certifications will have to be convincing to potential employers and have portability so that young workers are not tied to a single firm.

Employers would provide, and bear the direct costs of, occupational training. Governments would pay for technical assistance in the development and operation of programs, for monitoring the trainees' performance, and for testing the competencies of graduates. Savings from existing vocational education programs could fund these public functions as well as the school's new responsibilities for counseling and staging visits to work sites.

Government and labor representatives might have to agree to accept a training wage that is below the market wage and may sometimes fall below the minimum wage. Alternatively, apprentices might receive a training allowance in lieu of a wage for at least part of the student's time at the work site.

Although few training schemes of intensity and depth are currently available to high school students, a number of schools are beginning to experiment with such programs. Theme schools have been organized around occupational fields in the health professions, the travel industry, and the entertainment industry. In addition, the Pittsburgh school system is forging closer links with employers who can offer apprenticeships for students specializing in a vocational field. While promising, these initiatives must expand to cover a wide range of occupations and training programs designed to teach and test the key competencies in each career field.

A Plan of Action

Developing a new structure will require bold leadership within the public and private sectors. The federal government can act as a catalyst by launching

a major youth apprenticeship demonstration project. It should consist of several steps:

1) ***Presenting the Vision.*** The President, Governors, and key Congressional leaders should announce their intention to join in a national skill-building partnership.

2) ***The Institute for Youth Apprenticeship.*** To promote apprenticeship, the federal government should create a public-private institute with representatives from business, labor, education and state governments. It would oversee the development of competency standards for apprenticeships and trainers in specific occupational fields, monitor training, provide technical assistance, and collect data on and engage in strategic planning for the system.

3) ***Demonstration Projects.*** Washington should allocate $500 million and require state matching grants totaling $250 million to undertake apprenticeship demonstration projects in 10 U.S. cities. Qualifying for funding would depend on the ability of states and cities to draw on local business, labor and school officials in working closely with the Institute. Their joint efforts would focus on developing competencies that have credibility with employers, training rules, model contracts, and monitoring and certification systems for a variety of job paths. A second goal of the demonstration projects would be to test the effect of the program on young workers, on student academic performance, and on the structure of jobs and career ladders.

4) ***Technical Assistance.*** The Institute should work in concert with national business and trade associations to develop procedures certifying that apprentices have achieved competency in their occupational area.

5) ***Removing Obstacles.*** Congress and state legislatures should grant waiver authority to ensure that existing government regulations and laws do not stand in the way of a fair test of the apprenticeship idea. For example, funding formulas linked to school attendance should instead be based on performance in imparting marketable skills. Current rules on liability, child labor, and minimum wages must also be adapted to permit apprenticeships.

6) ***Research and Evaluation.*** The Institute should gauge the effects of apprenticeship on a) students' career options and expected earnings; b) the academic performance of pre-apprentice and apprentice students; c) job ladders and productivity; and, d) the number of work-based training and career positions available to non-college youth. It should also study the processes for creating competencies, for monitoring training, and certifying skills.

Conclusion

Does the promise of youth apprenticeship warrant such a dramatic restructuring of our school and job training systems? How can combining job-based education with other school reforms affect the nation's domestic problems?

We believe youth apprenticeship can help us fulfill four urgent national goals:

First, offering serious training and entry-level jobs to large numbers of non-college youth will increase the supply of skilled workers. The opportunity to acquire marketable skills will be particularly important to minorities and women, who will make up a disproportionately large part of new entrants to the workforce.

Since employers will be providing and paying for most of the training, the skills will be in fields they expect to need. The increase in relevant skills will raise productivity as well as improve efficiency in the implementation of new technologies. In fact, quality and relevant training will do more to raise productivity than increased physical capital. However, it will take time before the

cohorts trained through the new system make up a large share of the nation's labor force.

Second, as the productivity of non-college youth increases, a rise in their wages will follow. Their increased earning power will reduce the income gap between them and college-educated workers. We can expect employers to build on the capacities of apprentices by developing new job ladders and providing additional career training. These steps will, in turn, create more professionalized careers for non-college workers and thus raise their social status.

Third, word of promising new career options and the chance to begin job training by 11th grade will filter down to high school and junior high school students. This could well achieve more improvement in academic skills than most school reforms currently under discussion, because of the new incentives to learn, especially among those students not planning to attend college. Raising the proportion of non-college youth who take their studies and mainstream career options seriously could change the school atmosphere so that student peers no longer discourage good students from succeeding academically.

Fourth, the enhanced education, training, and careers of non-college youth will revive hope among youth who today are harming themselves through drugs and early parenthood. Over the last century, sexual activity has been occurring at younger ages while entry into responsible jobs has been taking place at older ages. These changes have no doubt contributed to the decline in marriage rates and to the tragic rise in one-parent families. Within the black community, the situation is so serious that the absence of fathers has become the primary cause of child poverty.

If apprenticeships draw large numbers of young people, especially disadvantaged minority youth, into serious training as early as 11th grade, early parenting will become less attractive and marriage more attractive. Making appealing careers a realistic option will be one factor, but perhaps as important will be the mentoring and acculturation that takes place in an adult work environment.

Ultimately, these effects will cumulate and penetrate the urban underclass. It is conceivable that a large, effective youth apprenticeship program will help bring today's urban underclass into the mainstream of economic and social life. Large impacts could take place quickly, since the program will primarily benefit non-college youth, the group that accounts for most neighborhood crimes and a large part of the drug problem. However, only a strategy aimed at a broad spectrum of young people can make a significant difference. Both young people and potential employers will view programs geared toward the poor as providing second-rate jobs and inferior workers.

This brings us to a final and crucial advantage of the youth apprenticeship strategy -- its natural appeal to a broad public. Unlike other initiatives, this job-based education strategy is inclusive, not exclusive; it is productivity-enhancing, not simply redistributive; and it promotes the incentives to learn and earn instead of discouraging work. The program can perhaps do the most for young minority workers, yet in a way that neither stigmatizes them nor gives them advantages over white workers.

Now is the time to bring the apprenticeship idea to center stage for the public, business and labor leaders, and government policy makers. Once people understand the program and its potential future benefit, large scale implementation can proceed. It might take years before youth apprenticeships are sufficiently widespread to begin to generate major effects. But we believe the public will support the program and, most importantly, will recognize that long-term problems require long-term solutions.

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